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Editorial

WASTAGE OF UNDERGROUND WATER - STEPS TOWARDS A TRAP?

Many scientists presume that our planet may have to face the third world war, which will be due to the fight for capture of water resources. The underground water resources are declining day by day and under many town and cities, the water level is declining at a very rapid rate due to imbalance of withdrawal and recharging by leaking of surface water through pervious layer of soil. Urbanization, particularly in the thickly populated countries like India, is not a planned subject and so nobody bother about utility of natural surface water resources. The effects of building of high-rises after filling of surface water resources like ponds and use of underground water for all type of construction purposes are having serious impact on recharge as well as quick depletion of underground water. Use of underground water for all the purposes like bathing, washing of garments and vehicles, use as flush in toilet etc. in urban areas by billions of people every day is also having a very serious impact on underground water store. In the Indian cities like Hyderabad or Chennai, many people are totally dependent on bottled/canned water sold by multinational companies for drinking and other household purposes. During such bottling, a huge amount of underground water becomes lost in the bottling processes. Many cities and towns are approaching to reach this condition very soon.

In a hot and humid country like India, many people were traditionally accustomed to take bathe in surface water sources like ponds, lakes or rivers. Same water source was used by many people for many purposes and water was not lost. This traditional system is at the way of total replacement by the western system where underground water is used and it is used only for once! Copy of such system from the cold countries where people seldom bathe to our hot, humid country, and intention to spread of this idea to even the villagers in the name of modernization is definitely questionable. The concentration of people and difference in *per capita* use of water in so called developed and developing country may also be considered.

Requirement of supply of drinking water through pipe is very important in some rural areas of our country. Yet, it is not so important or even not at all important in some other areas. The traditional hand pump for drinking water is sufficient for many places. Perhaps our experts like to think that our country is having uniform or identical agro-climatic condition. As like the culture, religion, social concepts etc., the requirement of water at household purposes also differs among districts, subdivisions or even among the villages inside the same block! Without considering such variables, how a good plan can be made?



Fig.1. An ever open tap of water supplying line in a village of West Bengal, India.



Fig.2. Modern forward osmosis desalination plant at Al Khaluf, Oman. (http://en.wikipedia.org/wiki/file:Modern_Water_FO_Plant_AI_Khaluf_Omam.jpg)

Anybody can find many villages in new alluvial zone where a huge number of ponds are available, the open water supplying taps (remain always open to control water pressure during supply of water) are throwing water constantly and nobody is there to take it. It may be found in almost all the supply periods of the day generally during the months from July to February. We are destroying one of our very important resources in that way.

Many villagers are already made sufferer of serious health problems due to consumption of Arsenic and Fluoride through drinking of underground water. This is due to the mixing of those chemicals with underground water for creation of vacuum in water layer beneath the soil. Use of underground water for cultivation of huge water consuming grains (like paddy in the dry winter season!) as directed by our famous "Green Revolution" was mainly responsible for this. Unnecessary loss of a huge amount of underground water is strengthening the problem.

Another important way of unnecessary water loss is the cold drinks manufacturing factories. How many of us know that loss of what amount of water can only give us a bottle of cold drink? Loss of water for such a purpose is called as the water footprint. The water footprint of the so called cold drink or soft drink is of 150 to 300 liter of water per 500 ml (half of a liter) bottle!

The cold drink factories cause depletion of underground water so rapidly that within five or six years of establishment of such a factory, the hand pumps of nearby area fail to function. Same type of observation can be found in the surrounding areas of mineral water plants.

The question is - what will be the alternative? Is there at all any alternative?

Some alternatives are already in our hand and they are already in use in some parts of our planet. We may select crops with lower level of water consumption during dry months and can create natural reservoir of rain water like pond or lake near the low rainfall areas. On the other way, we may use the Forward Osmosis procedure to get potable, wholesome very good quality drinking water from the salty sea water. Forward osmosis (FO) is an osmotically driven membrane bound process that uses osmotic pressure of concentrated solutions, including seawater, to extract clean water. This technology is very much with us, and it is already successfully implemented in some parts of our planet.

Then what is the problem in its use?

Involvement of a good amount of money is definitely required for establishment of such type of plant. The Cold drinks or bottle water manufacturing companies are not interested in this alternative as that may reduce their profit. But why our policy makers are not interested?

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